

vehicle part.

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37. A reinforcement laminate for reinforcing a substrate comprising a carrier layer, a first layer of foamable material capable upon activation of becoming a rigid reinforcement foam secured to said carrier layer, a second layer of foamable material capable upon activation of becoming a compliant foam secured to said first foamable layer, said second foamable layer comprising a bonding layer for securing said laminate to a substrate, said first foamable layer and said second foamable layer being heat curable, said second foamable layer functioning for absorbing shrinkage strains due to heat cure of said second foamable layer and cooling of the substrate, said carrier layer and said rigid foam layer and said compliant foam layer forming a reinforcing unit, said laminate in its elevation view having a pair of longitudinal side edges interconnected by a pair of transverse end edges, and at least one of said pair of side edges and said pair of end edges being of non-straight and undulated shape.
38. The laminate of claim 37 wherein said undulated shape has a pattern of hills and valleys joined together.
39. The laminate of claim 37 wherein said non-straight

- and undulated shape is formed by said side edges.
40. The laminate of claim 37 wherein said non-straight and undulated shape is formed by said end edges.
41. The laminate of claim 40 wherein said side edges also forms a non-straight and undulated shape.
42. A reinforced substrate comprising, in combination, a substrate, said substrate being a vehicle part, a reinforcement laminate, said reinforcement laminate including a carrier layer, said carrier layer being made of a fiberglass material, said laminate further including at least one foam layer which is expandable upon activation, said foam layer being integrally bonded to said carrier layer and remaining bonded to said carrier layer after activation and said foam layer after activation, being bonded to said substrate with said carrier layer spaced outwardly from said substrate.
43. The reinforced substrate of claim 42 wherein said foam layer is heat activatable, and said carrier layer having a thickness of at least 0.002 inches.

REMARKS:

This application has been carefully studied and amended in view of the Office Action dated January 29, 2003. Reconsideration of that action is requested in view of the following.

Claim 19 has been amended to include some of the subject

matter of dependent claims 20 and 21. Dependent claims 20 and 21 have been canceled. Claims 34-43 have been added to complete the claim coverage. Since there are now 8 additional claims, including two additional independent claims, a supplemental fee of \$312.00 is attached hereto.

It is respectfully requested that the rejection of the claims under the doctrine of obviousness-type double patenting be held in abeyance pending the indication of allowance of the various claims which had been rejected over the prior art. Upon such indication of allowability a terminal disclaimer will be filed to obviate the double patenting rejection.

It is respectfully submitted that parent claim 19 and its dependent claims 22-28 are patentable over Wycech. Parent claim 19 has been amended to include the features of dependent claims 20 and 21 with regard to the non-straight and undulated edges being formed from a pattern of hills and valleys. The feature of a pair of edges being non-straight and undulated particularly by being formed from a pattern of hills and valleys is not disclosed or suggested in Wycech. In addition, parent claim 19 includes the feature of a pattern of holes creating open passageways completely through the laminate. In the Office Action Examiner Vo dismissed these features on the basis that there is no evidence in the record to show any significance of those features. Examiner Vo is respectfully requested to reconsider that position. The specification in the last paragraph on page 1 extending over to page 2 points out that there is a problem in the automotive

industry during heat cure where there could be paint read through due to the heat curing. That portion of the specification specifically indicates the desirability of providing some techniques to eliminate or reduce the paint read through problem. The specification in the paragraph beginning at line 8 on page 3 refers to various aspects of the invention. This disclosure in particular addresses techniques for dealing with the paint read through problem. As stated therein one technique is to provide edges which are not parallel such as by having the edges either wavy and/or of sawtooth conditions, i.e., edges formed by hills and valleys. Another technique to control read through is to punch or form holes through all the polymer and backing layers. Thus, claim 19 is directed to both aspects of the invention which address the paint read through problem.

In contrast Wycech gives no hint or suggestion of addressing the paint read through problem. Thus, not surprisingly, Wycech does not show or suggest the feature in claim 19 of at least one of the sets of edges having a pattern of hills and valleys joined together so as to be non-straight and undulated. Similarly, Wycech does not suggest including a pattern of holes creating open passageways completely through the laminate to minimize the paint read through problem. As such, it would be unreasonable in the absence of some suggestion and motivation therefrom from other prior art to dismiss these features of claim 19 which are lacking in Wycech as simply being obvious features. If the features are obvious then any rejection should refer to specific prior art

teaching those features including providing the motivation for modifying Wycech to include those features.

Independent claim 37 has been added having some similarities to claim 19. In that respect, independent claim 37 also includes the feature of a set of edges which are of non-straight and undulated shape. In addition, claim 37 includes features found, for example, in claim 1 with regard to the laminate comprising a carrier layer and a rigid reinforcement foam secured to the carrier layer with a layer of compliant foam secured to the rigid foam. Such features are not found in Wycech. As later discussed, such features in the combination defined in parent claim 37 are also lacking in the Mueller and Childress patents which were relied upon by Examiner Vo for rejecting claim 19.

Newly added claims 38-41 are dependent on claim 37 and should be allowed for the features defined in those claims in addition to their dependency on parent claim 37.

It is respectfully submitted that parent claim 1 and its dependent claims and parent claim 19 and its dependent claims are also patentable over Mueller in view of Childress.

Parent claim 1 relates to a reinforcement laminate which includes a carrier layer and a layer of rigid reinforcement foam secured to the carrier layer with a layer of compliant foam secured to the rigid foam. Claim 1 also includes the feature of "a pattern of holes creating open passageways completely through said laminate". Parent claim 19 includes the feature of the pattern of holes creating open passageways completely through the laminate.

Mueller relates to a polymeric shaped article and more specifically "bathtubs, bathtub and shower enclosures, basins, shower enclosures, and the like" as stated in col. 1, lines 6-7 regarding the field of the invention. The article or bathtub as shown, for example, in Figure 2 includes a thin gelcoat or thermoset layer 20 disposed against a thermoset foam or support 30 which in turn is disposed against an intermediate foam 40 with an outer foam layer 50 against the intermediate foam layer 40. Clearly, Mueller does not include the features regarding the pattern of holes creating open passageways completely through the laminate. This is recognized by Examiner Vo in her reliance on the Childress patent. Applicant disagrees that Childress is in an analogous art. Childress specifically relates to sandwich structures used in aerospace, automotive and marine applications. This is far different than the bathtubs, bathtubs and shower enclosures, shower stalls and surrounds, basins, and the like as referred to in Mueller. In view of the vastly different types of products with which the Mueller and Childress patents are concerned it is not reasonable to conclude that those products are analogous and certainly there is no motivation from the aerospace, automotive or marine application type products of the Childress patent to make any modification to the bathtub type products of the Mueller patent or vice versa. In the absence of motivation, particularly since the products concerned with each patent are so different from each other, a hypothetical combination itself is improper.

Even if, however, it were proper to combine the Childress

and Mueller patents such hypothetical combination would not result in the claimed invention. What Childress actually discloses is a pin-reinforced sandwich structure wherein it is the pins which extend through the combination of face sheets and foam core. Such pins are physical structures and could not be considered the same as "a pattern of holes creating open passageways completely through said laminate". There simply are not any such open passageways because what might otherwise be considered as a hole or passageway is filled by the physical presence of the Childress pins. Accordingly, parent claim 1 and its dependent claims and parent claim 19 and its dependent claims should be allowed over Mueller and Childress.

Claims 35 and 36 have been added which are dependent directly or indirectly on claim 1. Claim 35 lists the type of materials that would be used as the carrier layer. Claim 36 specifies that the substrate is a vehicle part. These claims, particularly in combination with parent claim 1 clearly distinguish over Mueller and Childress.

It is respectfully submitted that claims 7, 15 and 29-33 are patentable over Mueller and Childress and further in view of LaMarca. Of this group of claims claims 7 and 15 are dependent on claim 1 while claim 29 is dependent on claim 19. These dependent claims add features relating to the substrate being a vehicle part. LaMarca was relied upon for that feature. As later discussed, however, LaMarca does not overcome the basic deficiencies of the hypothetical combination of Mueller and Childress since LaMarca,

likewise, does not provide the missing feature of the pattern of holes creating open passageways.

The remaining claims in the rejection over Mueller in view of Childress and further in view of LaMarca are claims 30-33. Claim 34 has been added which is dependent on claim 30 and should also be considered in this discussion.

At the outset it is noted that there is a similarity between parent claim 30 of this application and claim 19 of parent patent 6,372,334 which was also examined by Examiner Vo. In issuing the parent patent Examiner Vo considered these very same references, Mueller, Childress and LaMarca, and nevertheless concluded that claim 19 of the parent patent was patentable. Accordingly, Examiner Vo is now taking an inconsistent position with the position she had previously taken in issuing the '334 parent patent. Moreover, the position she had taken previously is the correct position. Parent claim 30 of this application relates to a reinforced structure which includes a carrier layer, and a layer of rigid reinforcement foam secured to the carrier layer with a layer of compliant foam secured to the rigid foam. In addition, claim 30 defines the layer of compliant foam being secured to a substrate and thus functioning to be a bonding layer for securing the layer to the substrate. Further claim 30 defines the substrate itself as being a vehicle door.

This combination alone is patentable over Mueller, Childress and LaMarca. As indicated previously applicant disagrees that Mueller and Childress are properly combinable since both

patents deal with totally different types of subject matter, namely, the bathtub type subject matter of Mueller and the aerospace, vehicular or marine-type subject matter of Childress. Adding LaMarca to the mix does not overcome the impropriety of combining Mueller with Childress. Indeed, LaMarca represents yet a different type of subject matter. In this respect, LaMarca is not directed to any reinforcement. Instead, LaMarca discloses a structure which is intended as "an aesthetically pleasing facing layer". (col. 2, lines 47-48) While LaMarca makes reference to vehicle doors the reference is more specifically "Automotive interior trim articles, such as door panels, door and window pillars, arm rests, instrument panels, seat backs, seat side panels, consoles, sun visors and the like..." (col. 1, lines 16-19) Accordingly, the hypothetical combination suggested in order to reject these claims involves a bathtub and a pinned reinforced sandwich structure for various applications and an aesthetically pleasing facing layer which could be used for automotive interior trim articles. Such diverse subject matters simply do not suggest their combinability and clearly provide no motivation which would lead to modifying the bathtub of Mueller to include features from the secondary art so as to result in the claimed reinforced vehicle door of parent claim 30.

In addition, as discussed above, claim 30 includes the feature of "a pattern of holes creating open passageways completely through said laminate". That feature is in no way disclosed or suggested by Mueller or LaMarca. Moreover, the Examiner's reliance

on Childress for that feature is misplaced because Childress does not have open passageways. Instead, Childress has a pin reinforced sandwich wherein the inclusion of the pins would prevent the creation of open passageways.

Newly added dependent claim 34 adds to the combination of claim 30 that the compliant foam layer is mounted at generally the central area of the vehicle door. This particular location for the laminate is also lacking in the Mueller, Childress and LaMarca references.

With regard to the newly added claims support therein is found in the specification and original claims. For example, the features of newly added claim 34 find support at page 10, lines 10-12. The features of newly added claim 35 are supported by page 5, lines 15-16. Support for the feature of claim 36 is found throughout the specification and original claims including Figure 8. Support for newly added claim 37 is found from the features of original claims 1 and 8. Support for newly added claims 38-41 is found in original claims 9 and 11-13.

Claims 42-43 have been added to complete the claim coverage. Independent claim 42 is directed to a specific practice of the invention wherein the reinforcement laminate is bonded to the substrate which with the substrate being a vehicle part. The reinforcement laminate includes a carrier layer made of fiberglass material. The laminate also includes at least one foam layer which is expandable upon activation. Before activation the foam layer and carrier layer are integrally bonded together. After activation

the foam layer is bonded to the substrate and remains bonded to the carrier layer with the foam layer being disposed between the carrier layer and the substrate. Dependent claim 43 adds to claim 42 that the foam layer is heat activatable. Dependent claim 43 also recites a preferred minimum thickness for the carrier layer. None of the prior art cited herein discloses the combination of claims 42-43.

In view of the above remarks and amendments this application should be passed to issue.

Respectfully submitted,
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